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Removal Site Evaluation for LCP Chemicals, Inc., Division of
Hanlin Group, Linden, Union County, New Jersey

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Removal Action Branch

File

Site I.D. No.: ZZ

REMOVAL ASSESSMENT RANKING: not eligible

I. INTRODUCTION

The Removal Action Branch received a verbal request from the Pre-remedial Section in January, 1996 to evaluate LCP Chemicals, Inc. for Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) Removal Action consideration. The request was focused on the former lagoon area.

There has been a release of CERCLA designated Hazardous Substances at LCP Chemicals, Inc. Elevated levels of mercury are present in the soil, sediment, and nearby surface waters due to past disposal practices at the Site. However, based on the available information, LCP Chemicals, Inc. is not eligible for a CERCLA Removal Action at this time. According to the New Jersey Department of Health and the Agency for Toxic Substances and Disease Registry, there are no completed or anticipated human exposure pathways associated with the Site under present conditions. Furthermore, there are no defined acute ecological threats which warrant a CERCLA Removal Action at this time.

The Site is currently undergoing further study under the pre-remedial site assessment program for potential National Priorities List (NPL) consideration.

II. SITE CONDITIONS AND BACKGROUND

A. Site Description

1. Physical location

LCP Chemicals, Inc. (Site) is situated off of South Wood Avenue on the Tremley Point peninsula, in Linden, Union County, New Jersey (see Figure 1). The Site, which occupies 26 acres on filled marshland and is located in an industrial area, is bordered by the South Branch Creek to the east; GAF Corporation to the north; and Northville Industries, BP Corporation, and Mobil to the northeast, south, and west, respectively.

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8/12/96

It is estimated that 38 persons reside within one-half mile of the Site, with the nearest residential home being approximately one-half mile west on South Wood Avenue. The distance from the entrance to the Site from South Wood Avenue via paved roadway is estimated to be at least one mile.

The South Branch Creek, a tributary to the Arthur Kill, appears to arise onsite and flows approximately 1,000 feet along the eastern border of the Site before discharging into the Arthur Kill. The Arthur Kill is classified as "Saline Estuarine Waters: SE2" and is reportedly used for recreational boating. The Arthur Kill, which is tidally influenced, flows south for approximately 10 miles where it discharges into the Raritan Bay. The Site is located within the 100-year floodplain. River and coastal tidal water wetlands exist in the immediate vicinity of the Site.

The Peregrine Falcon, northern harrier, great blue heron, yellow-crowned night heron, and little blue heron, all state-listed species, are reported to either breed or hunt in the salt marshes near the Site. Prall's Island, located approximately 1,000 feet east of the mouth of the South Branch Creek, is a breeding area and rookery for some of these birds. Currently, a habitat restoration project is ongoing at Prall's Island and other nearby salt marshes as part of the mitigation for the 1990 Bayway Refinery oil spill. No terrestrial sensitive environments have been identified on or within 200 feet of the Site.

It is reported that ground water is not utilized as a source of potable water within four miles of the Site. Surface water is the primary source for potable water usage within four miles of the Site. The surface water sources for this area are not located in the Site's surface water pathway nor are they impacted by the Site.

2. Site characteristics

The LCP Chemicals Linden facility (see Figure 2) was used from 1972 to 1985 to produce chlorine using a mercury cell electrolysis process. The facility is owned by Hanlin Group, Inc. of Edison, New Jersey. Prior to 1972, GAF had produced chlorine and sodium hydroxide at this location since 1952. GAF had purchased the land from the U.S. government in 1950, filled an area of marshland and lowland, and developed it.

When LCP Chemicals purchased the site they continued using the same chlorine processing method already being used with a few minor modifications. During operations, LCP Chemicals manufactured 500 tons of chlorine per day. The company also produced sodium hydroxide, hydrochloric acid and anhydrous hydrochloric acid. In the early 1980s the plant was converted to produce potassium hydroxide and operated briefly before it permanently ceased production operations at the plant in 1985.

In the period prior to 1994, when the Linden facility was vacated, the Site was used as a transfer terminal for products from other Hanlin Group facilities. Products including potassium hydroxide, sodium hydroxide and hydrochloric acid arrived in bulk by rail and truck and were transferred to aboveground tanks and tank trucks. The plant was dismantled during the period between 1985 to 1994.

The mercury cell electrolytic process involved the electrolysis of a sodium chloride (brine) solution in the presence of metallic mercury. Metallic mercury was partially recovered and recycled in a brine purification process. The remaining mercury-contaminated sludge was placed into an on-site lagoon (Brine Sludge Lagoon) located in an area between the fenced-in operations portion of the LCP facility and the adjacent Northville facility. The supernatant from the lagoon was collected and piped to the site wastewater treatment plant for treatment prior to being discharged to the South Branch Creek via the company's New Jersey Pollutant Discharge System (NJPDES) permit. The sludge, which contained amongst other constituents, barium and mercury, was left in the lagoon. It is reported that the sludge accumulated for more than 20 years prior to the lagoon's closure under the Resource Conservation and Recovery Act (RCRA) in 1984.

The former Brine Sludge Lagoon, now a landfill, is approximately 200 feet long by 150 feet wide by 20 to 25 feet high. The total volume of sludge stored in the lagoon is estimated to be nearly 31,000 cubic yards. As part of the closure of the lagoon, it was reportedly dewatered; compacted; capped with a two-foot layer of clay, six inches of drainage media, six inches of soil; and vegetated. The cover is reportedly inspected and maintained as part of the closure plan.

3. Site assessment activities/observations

The following EPA personnel were directly involved in the Removal Assessment conducted for LCP Chemicals, Inc.: Nick Magriples and Robert Montgomery of the Removal Action Branch (RAB).

A site visit conducted on August 18, 1994 for a previous Removal Site Evaluation (September 9, 1994) revealed that the company was preparing to leave the Site. According to company officials at that time, LCP was in Chapter 11 bankruptcy and had sold all of its operating assets. At the time of the site visit, all employees were reportedly expected to be off the facility by the end of August, 1994. Two small businesses lease a portion of the buildings near the entrance. Union Carbide reportedly leased a portion of the Site from the time period when GAF owned the property till 1990.

Site visits on March 26, 1996 and May 2, 1996 revealed that

access to the LCP Chemicals property was readily available. A tank cleaning company currently leases several structures from the owners of the property and operate near the entrance to the Site. Indications of vandalism are evident in portions of the vacant facility. Except for a Northville Industries oil tank farm, there does not appear to be any occupied structures present around the Site for at least one-quarter mile.

A fence and rail line separate the main portion of the former operations from the location of the impoundment on one side. The gate on this fence has been discovered open on both visits and apparently is not locked. The gates on the fences separating the impoundment area from the adjoining petroleum tank farms on the northern and southern ends appear to be kept unlocked for an access road for the tank farms. This unpaved road passes directly adjacent to the berm of the lagoon. The impoundment, which itself is encircled by a smaller unpaved path branching off of the access road, rises approximately 30 feet in elevation above this roadway. The sides of the impoundment are vegetated with grass and weeds. Some erosion of the impoundment's berms was observed on all sides.

4. Release or threatened release into the environment of a hazardous substance, or pollutant or contaminant

Through the years there have been several documented significant releases of brine from the impoundment onto the ground surface and into the South Branch Creek. In 1979, a sodium chloride solution contaminated with inorganic mercury overflowed from the process and the wastewater system resulting in a release of an estimated 10,000 to 20,000 gallons of this material into the South Branch Creek.

During installation of monitoring wells in 1982, mercury was discovered in the soil at 0-2 feet in depth at concentrations ranging from 36 mg/kg to 772 mg/kg. Surface soils (actual depth unknown) collected from the perimeter of the lagoon at that time indicated mercury levels ranging from 27 mg/kg to 1,580 mg/kg.

On January 11, 1995, an EPA pre-remedial contractor collected three surface soil samples (0-6 inches), ten surface water samples, and eight sediment samples. The highest level of mercury noted in the surface soils was 110 mg/kg. The average concentration of mercury in the downstream sediments of the South Branch Creek was 500 mg/kg. The highest concentration was 1,060 mg/kg. Mercury was detected in the surface water at 93 ug/l near the facility's outfall. Arsenic was also present in most of the samples. The arsenic concentration in the surface water and sediment was 336 ug/l and 318 mg/kg, respectively. The highest level in the soil was 17 mg/kg. Zinc, copper, lead, and cadmium were also noted in these samples.

The materials listed above are CERCLA designated Hazardous Substances, as listed in 40 CFR Table 302.4. The above data is only a summary of the more pertinent analytical information. It is not meant to be inclusive of all of the analytes or compounds detected.

The mechanism for past releases to the environment is based upon the discharge of wastewaters and sludges into the impoundment and the subsequent releases from the impoundment to the ground surface and South Branch Creek. Limited construction information is available for the former impoundment.

Currently, the contaminated soil and sediment remains unmitigated. Leaching of contaminants into South Branch Creek is ongoing. The flow of contaminants into the Arthur Kill is not defined at this time. Prall's Island, a breeding area and rookery located approximately 1,000 feet from the South Branch Creek discharge into the Arthur Kill, could be impacted. Ground water may be impacted from leakage of contaminants into the subsurface.

5. NPL status

The Site is currently not an NPL site. A Site Inspection (SI) has been completed. Further pre-remedial activities are expected. The Site was evaluated by NJDOH/ATSDR on June 24, 1996.

B. Other Actions to Date

1. Previous actions

There have been no other previous Federal or private party actions taken at the Site.

2. Current actions

Currently, there are no Federal actions taking place at the Site.

C. State and Local Authorities' Role

1. State and local actions to date

There have been no State or local actions taken at the Site.

2. Potential for continued State/local response

At this time it is not known whether there will be any future State or local actions taken at the Site.

III. THREAT TO PUBLIC HEALTH OR WELFARE OR THE ENVIRONMENT, AND STATUTORY AND REGULATORY AUTHORITIES

A. Threats to Public Health or Welfare

Elevated levels of mercury, a CERCLA designated hazardous substance, are present in the soils, sediments, and surface waters in and around the Site. Migration appears to be occurring into the South Branch Creek, and potentially to the Arthur Kill and nearby wetlands. Although it is possible, it is not likely that the public will come into contact with the contaminated soil. According to the New Jersey Department of Health (NJDOH) and Agency for Toxic Substances and Disease Registry (ATSDR), there are no completed or anticipated human exposure pathways associated with the Site under present conditions (see Attachment A).

B. Threats to the Environment

A screening-level ecological risk assessment was completed (July 3, 1996) by personnel from the U.S. EPA Environmental Services Division (see Attachment B). A comparison of surface water inorganic contaminant levels to available screening values indicates that there is a potential for acute effects to aquatic biota for the length of South Branch Creek, depending on the influence of tides and flow rates at any given time. A comparison of sediment inorganic contaminant levels to available screening values indicates that there is a potential for significant impact throughout the creek system. Mercury is a mutagen, teratogen, and carcinogen, and causes embryocidal, cytochemical, and histopathological effects.

If marine species are present in South Branch Creek, then they could introduce contamination into the food chain through at least two pathways: accumulation of contaminants by young marine species that may be carried into the food chain, and accumulation by any aquatic or benthic species that may be consumed by avian piscivores. As noted in Section II.A.1. of this report, there are several important avian habitats located near the site.

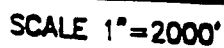
It should be noted that the potential for realization of these potentially acute effects is based on, but not limited to, the assumptions that South Branch Creek is a tidal tributary and wetland with ecological value, and that it is used by estuarine aquatic species for all life stages, as well as by marine species for spawning and nursery habitat. The actual use of the creek by these species would depend on the specific characteristics of the creek channel and wetlands, even if contamination is not considered.

IV. EXPECTED CHANGE IN THE SITUATION SHOULD ACTION BE DELAYED OR NOT TAKEN

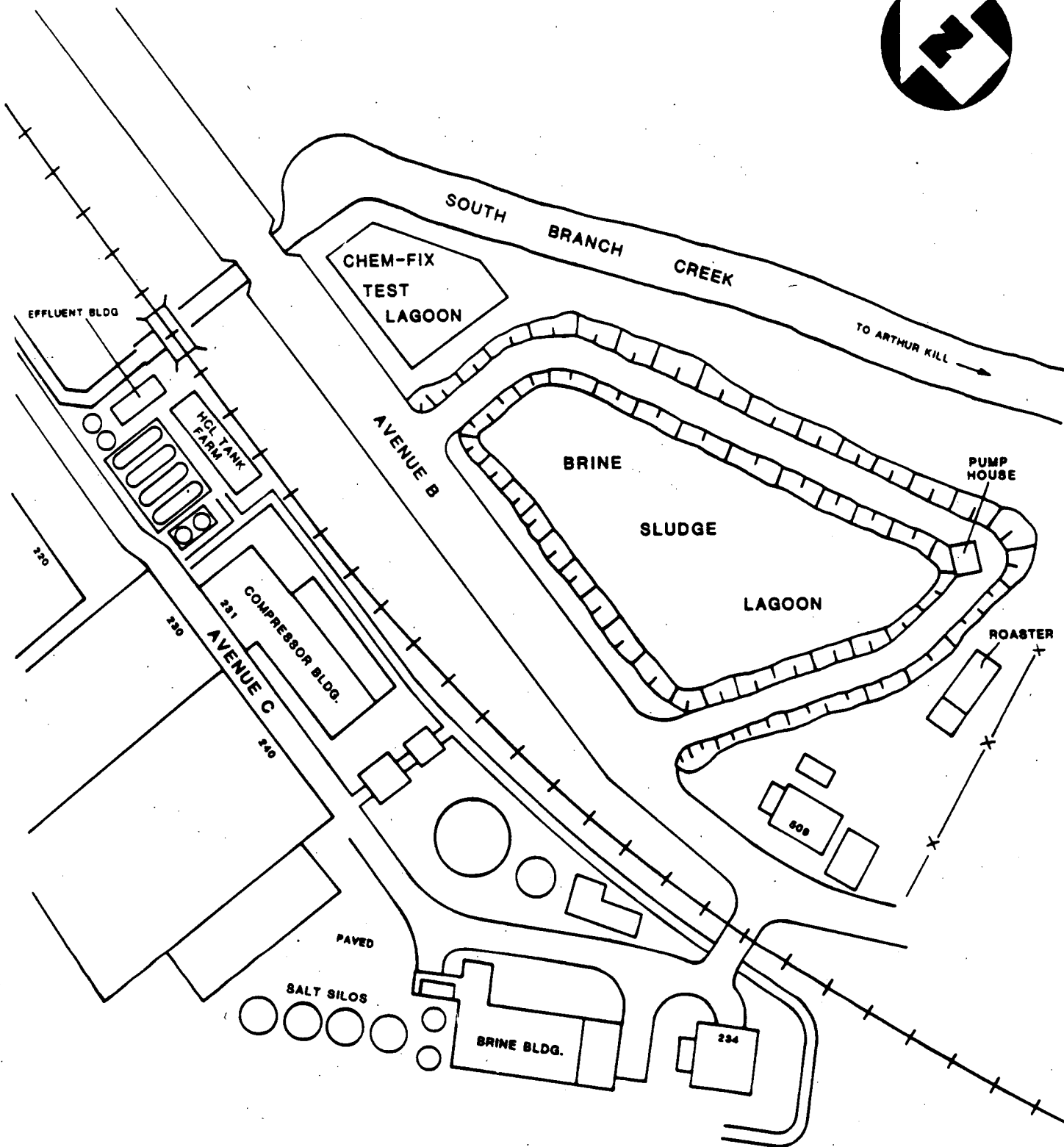
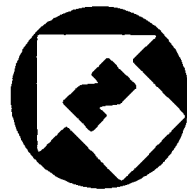
This section is not applicable at this time.

V. CONCLUSIONS

LCP Chemicals, Inc. is not eligible for a CERCLA Removal Action at this time since there are no completed or anticipated human exposure pathways associated with the Site under present conditions and due to the currently indeterminate nature of the threat to the environment in an area that has been historically impacted from numerous industrial and municipal activities.

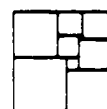


Note: This Figure was adapted from the 1992 RCRA Facility Inspection Report prepared for the LCP Chemical site by Eder Associates Consulting Engineers, P.C. (Ref. No. 15).



SITE MAP
LCP CHEMICALS SITE, LINDEN, N.J.
SCALE: 1" = APPROX. 100'

FIGURE A-2



NUS
CORPORATION



A Halliburton Company

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Attachment A

Attachment B